inter-panel communication device separately or together. Power and information is transferred between communication devices of the panels.

[**0019**] According to the above configuration, since the panels are coupled by the hinge mechanism, they can be folded compact and loaded into a narrow space in the rocket. The panels are also loaded with devices at user's request, and a necessary one of the panels is used. The panels therefore increase and decrease in number to be flexibly adapted to the requests for functions and reliability.

[**0020**] Since a solar panel is mounted on the outer surface of each of the panels, the area that receives sunlight can be enlarged to improve the power generated therefrom. Since, moreover, the panels are coupled by a thermal conductivity sheet having flexibility, a difference in temperature between the panels can be brought as close as possible to zero.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[**0021**] **FIG. 1** is a perspective view of an artificial satellite according to a first embodiment of the present invention, which is folded;

[**0022**] **FIG. 2** is a perspective view of the artificial satellite according to the first embodiment, which is unfolded;

[**0023**] **FIG. 3** is a schematic plan view of a panel according to the first embodiment;

[**0024**] **FIG. 4** is a perspective view showing a panel according to the first embodiment, which is folded;

[**0025**] **FIG. 5** is a perspective view showing the internal structure of the panel according to the first embodiment;

[**0026**] **FIG. 6** is an exploded perspective view of the panel according to the first embodiment;

[**0027**] **FIG. 7** is a perspective view of a corner panel according to the first embodiment;

[**0028**] **FIG. 8** is a perspective view of the corner panel according to the first embodiment;

[**0029**] **FIG. 9** is a perspective view showing the internal structure of the corner panel according to the first embodiment;

[**0030**] **FIG. 10A** is a schematic plan view showing a second embodiment of the present invention;

[**0031**] **FIG. 10B** is a longitudinal-sectional side view of the second embodiment; and

[**0032**] **FIG. 11** is a sketch of an artificial satellite loaded in a rocket.

DETAILED DESCRIPTION OF THE INVENTION

[**0033**] Embodiments of the present invention will be described below with reference to the drawings of an artificial satellite for optical observation using a lens as an example.

[**0034**] FIGS. **1** to **9** show an artificial satellite according to a first embodiment. **FIG. 1** is a perspective view of the artificial satellite that is folded, and **FIG. 2** is a perspective view of the artificial satellite that is unfolded. In the first embodiment, nine panels of substantially the same size are coupled by a hinge mechanism, which will be described later, in such a manner that they can be folded to thereby constitute an artificial satellite **1**. Describing the unfolded artificial satellite **1** shown in **FIG. 2** in brief, a mission equipment panel **3** is coupled to one end of a communication panel **2** such that they are flush with each other. A first CPU panel **4** is coupled to the other end of the mission equipment panel **3** at right angles. In the artificial satellite **1**, the mission equipment panel **3** is loaded with a device for optical observation, e.g., an optical device such as a lens having a long focal length.

[**0035**] A power supply panel **5**, a first attitude control panel **6** and a second CPU panel **7** are coupled in this order to the other end of the first CPU panel **4** such that they are flush with each other. An image sensor memory panel **8** is coupled to the other end of the second CPU panel **7** at right angles.

[**0036**] A second attitude control panel **9** is coupled to the other end of the image sensor memory panel **8** such that they are flush with each other. The image sensor memory panel **8** and second attitude control panel **9** are parallel with the communication panel **2** and mission equipment panel **3**. A third attitude control panel **10** is coupled to one side of the second attitude control panel **9** at right angles. The first, second and third attitude control panels **6**, **9** and **10** are arranged in three directions that are perpendicular to each other and can generate three shifting attitude control forces. The artificial satellite **1** is shaped almost like a Japanese letter "コ" when it is unfolded. The panels **2** to **10** are folded in zigzags and bound with a binding rope **1***a* to allow the layered panels to be loaded on a rocket as shown in **FIG. 1**. The reason why the artificial satellite **1** is shaped almost like a Japanese letter "コ" is that the image sensor memory panel **8** picks up an image from the light that passed through a lens of the mission equipment panel **3** and observes the image optically.

[**0037**] The panels **2** to **10** are basically of the same shape and size. Describing the first attitude control panel **6** as an example, it is configured as shown in FIGS. **3** to **9**. A panel main body **11**, which is formed of light-metal materials or light and high-strength composite materials such as CFRP, is shaped like an octagon that is obtained by cutting four corners of a square in plan into triangular corner panels **12**. These triangular corner panels **12** are coupled to the four corners of the panel main body **11**.

[**0038**] The panel main body **11** is shaped like a flat box that is configured by a bottom plate **13**, a side plate **14** corresponding to the sidewall, and a cover plate **15**. Notches **16** are formed on their respective four sides of the side plate **14**. Each of the corner panels **12** is also shaped like a flat box that is configured by a bottom plate **17**, a side plate **18** corresponding to the sidewall, and a cover plate **19**. The bottom plate **17** and cover plate **19** of each of the corner panels **12** are fixed to the bottom plate **13** and cover plate **15** of the panel main body **11** by bolts **20**, respectively, with the result that the corner panels **12** are coupled to the panel main body **11**.

[**0039**] A hinge mechanism **21***a* is attached to the corner between the bottom plate **17** and side plate **18** of each of the corner panels **12** to couple adjacent panels rotatably to each other. The hinge mechanism **21***a* is energized by an ener-